

CLAIMS

What is claimed is:

1. (currently amended) A method for fabricating a write pole tip for perpendicular recording, comprising:
 - 3 A) fabricating ~~the a P1 pole~~, coils and ~~a~~ P2 flux shaping layer;
 - 4 B) depositing ~~the a~~ P3 layer on said P2 flux shaping layer;
 - 5 C) depositing a CMP stop layer on said P3 layer;
 - 6 D) depositing at least one sacrificial layer on said CMP stop layer;
 - 7 E) shaping said P3 layer into P3 pole tip;
 - 8 F) removing said at least one sacrificial layer to leave said P3 pole tip; and
 - 9 G) encapsulating said P3 pole tip in a protective layer.
1. 2. (original) The method of claim 1, wherein:
2. said P3 layer material of B) is a material chosen from the group consisting of
3. CoFe, CoFeN, NiFe, CoFe alloys, CoFeN alloys, NiFe alloys, Cr, Al₂O₃, and Ru.
1. 3. (original) The method of claim 1, wherein:
2. said CMP stop layer material of C) is a material chosen from the group consisting
3. of Al₂O₃, Ta₂O₅, SiO_xN_y, Al₂O₃ alloys, Ta₂O₅ alloys, SiO_xN_y alloys and insulation
4. materials.
1. 4. (original) The method of claim 1, wherein:
2. said at least one sacrificial layer of D) comprises a sacrificial layer PS of
3. sacrificial material chosen from the group consisting of NiFe, NiP and plated materials
4. with high ion milling resistances.
1. 5.(original) The method of claim 4, wherein:
2. said at least one sacrificial layer of D) further comprises a seed layer of sacrificial
3. material.
1. 6. (currently amended) The method of claim 5, wherein:
2. said PS at least one sacrificial layer is formed by creating a cavity surrounded by
3. photo-resist material, said cavity then being filled with sacrificial material.
1. 7.(original) The method of claim 1, wherein:
2. said shaping of said P3 layer of E) is done by ion milling.
1. 8. (currently amended) The method of claim 7, wherein:
2. said ion milling is done to first produce a straight-sided structure, as said PS at
3. least one sacrificial layer masks said P3 pole tip, and then said CMP stop layer acts as a
4. secondary mask as ion milling is used to bevel the sides of said P3 pole tip.

- 1 9. (original) The method of claim 8, wherein:
2 said beveled sides of said P3 pole tip are beveled to an angle with the range of 8
3 degrees to 15 degrees.
- 1 10. (original) The method of claim 1, wherein:
2 said finished P3 pole tip has a width less than 200 nm.
- 1 11. (withdrawn) The method of claim 1, wherein:
2 said removing of said at least one sacrificial layer of F) further comprises
3 removing said CMP stop layer.
- 1 12. (withdrawn) The method of claim 11, wherein:
2 said removing of said CMP stop layer comprises using Chemical Mechanical
3 Polishing.
- 1 13. (original) The method of claim 1, wherein:
2 said encapsulating material of G) comprises material matching that of said CMP
3 stop layer.
- 1 14. (withdrawn) The method of claim 1, wherein:
2 said at least one sacrificial layer of D) comprises magnetic material; and
3 said removing said at least one sacrificial layer of F) requires that all of said
4 magnetic material of said at least one sacrificial layer be completely removed.